

## CLAIMS

1           1.     Stator for a hydrodynamic torque converter with stator elements,  
2     consisting of a stator hub, vanes mounted thereon, and a stator rim, which connects the vanes  
3     to each other in the radially outer area, characterized in that the stator elements (30) are  
4     obtainable from a common blank (32) by the formation of different groups (34) of stator  
5     elements in the form of hub segments (36), vanes (17), and rim segments (38), in that at least  
6     some of the groups (34) of stator elements are freed from each other by means of separation  
7     operations, and in that at least some of the groups (34) of stator elements are subjected to  
8     deformation processes which bend them from the original plane of the blank (40) into a new,  
9     different plane of extension (42, 44, 46).

1           2.     Stator according to Claim 1 with a center axis, characterized in that, upon  
2     completion of the separation and deformation processes, the groups (34) of stator elements, in  
3     their new planes of extension (42, 44, 46), are lined up in rows with one another in the  
4     circumferential direction along lines of curvature (50, 52) which encircle the center axis (48),  
5     each at specific distances (R1, R2) therefrom.

1           3.     Stator according to Claim 1 and Claim 2, characterized in that the hub  
2     segments (36) forming one of the groups (34) of stator elements are lined up in a row in the  
3     circumferential direction, and in that at least one abutting end (54) of each hub segment (36) is  
4     connected to at least one abutting end (56) of another hub segment (36) to form the segmented  
5     stator hub (58).

1                   4. Stator according to Claim 3, characterized in that the abutting ends (54, 56)  
2 of the stator hub segments (36) are connected to each other by welds.

1                   5. Stator according to Claim 3, characterized in that the circumferential ends  
2 (112, 114) of the segmented stator hub (58) form abutting ends (65, 67) by which they are  
3 connected to each other.

1                   6. Stator according to one of Claims 1-5, characterized in that the group (34) of  
2 stator elements consisting of the rim segments (38) has a shroud (39), which connects the  
3 individual rim segments (38) to each other in the circumferential direction, which shroud,  
4 together with the rim segments (38), forms the stator rim (19) when the abutting ends (62, 64)  
5 provided at the circumferential ends (112, 114) are connected to each other.

1                   7. Stator according to one of Claims 1-6, characterized in that the segmented  
2 stator hub (58), the stator rim (19), and the vanes (17) located between them form vane areas  
3 (96), and in that the segmented stator hub (58) of at least one vane area (96) is connected to a  
4 base body hub (60) to produce the stator hub (15).

1                   8. Stator according to Claim 7, characterized in that the minimum of one vane  
2 area (96) surrounds at least part of the circumference of the base body hub (60).

1                   9. Stator according to Claim 7 or Claim 8, characterized in that the minimum  
2 of one segmented stator hub (58) is attached by spot welds (98) to the base body hub (60).

1                   10. Stator according to one of Claims 7-9, characterized in that the base body  
2 hub (60) and the segmented stator hub (58) are connected to each other by a retaining device

3 (61), which prevents them from moving with respect to each other in the circumferential  
4 direction and/or in the axial direction and therefore, for attachment to each other they only  
5 require at least the connection at the abutting ends of (65, 67) of the segmented stator hub (58).

1 11. Stator according to Claim 10, characterized in that the stator rim (19) is  
2 also connected at its abutting ends (62, 64) in coordination with the retaining device (61).

1 12. Stator according to Claim 10 or Claim 11, characterized in that the  
2 connection between the abutting ends (62, 64) of the stator rim (19) and the connection  
3 between the abutting ends (65, 67) of the segmented stator hub (58) are produced by welding.

1 13. Stator according to Claim 12, characterized in that the welding operation  
2 takes the form of spot-welding (99).

1 14. Stator according to one of Claims 10-13, characterized in that the retaining  
2 device (61) is formed by a profiled channel (102) in the outer circumference (100) of the base  
3 body hub (60), in which channel the segmented stator hub (58), which is formed with  
4 correspondingly profiled axial edges (104), positively engages.

1 15. Stator according to Claim 1, characterized in that the individual groups (34)  
2 of stator elements are subjected to plastic deformation to bend them into their new planes of  
3 extension (42, 44, 46).

1 16. Stator according to Claim 15, characterized in that the stator hub segments  
2 (36) or the stator rim segments (38) are deformed in an essentially plastic manner to conform  
3 to their lines of curvature (50, 52), which extend in the circumferential direction around, and a

4 certain distance (R1, R2) away from, the center axis (48), and in that the vanes (17) are  
5 deformed in an essentially plastic manner to conform to their intended curvature in the axial  
6 and/or radial direction of extension.

1 17. Stator according to one of Claims 1-16, characterized in that, with respect  
2 to their planes of extension (42, 44, 46), the stator hub segments (36) are essentially  
3 perpendicular to the vanes (17) and the vanes are essentially perpendicular to the stator rim  
4 segments (38).

1 18. Stator according to one of Claims 1-17, characterized in that one of the  
2 abutting ends (54, 56) of each of the stator hub segments (36) has a circumferential trailing lip  
3 (66) for the vane (17) which follows the hub segment in question in the circumferential  
4 direction, where the circumferential trailing lip (66) has a corresponding receiving area (68) on  
5 the side designed to receive this vane (17).

1 19. Stator according to one of Claims 1-18, characterized in that each of the  
2 stator hub segments (36) has a compensating opening (70) to accommodate, over a certain  
3 range of angles around the center axis (48), the difference between the circumferential length  
4 of the segmented stator hub (58) and that of the stator rim (19), where this compensating  
5 opening (70) is intended to receive an engaging projection (72) of the stator hub segment (36)  
6 which precedes it in the circumferential direction.

1 20. Stator according to one of Claims 1-19, characterized in that each of the  
2 stator hub segments (36) has a first bending line (74) adjacent on one side to the end of the  
3 circumferential trailing lip (66) facing the vane (17) and adjacent on the other side to the

4 compensating opening (70), around which line the vane (17) assigned to this stator hub  
5 segment (36) is bent.

1 21. Stator according to one of Claims 1-20, characterized in that, on the side  
2 facing away from the associated stator hub segment (36), the vane (17) has a second bending  
3 line (76) around which it can be bent with respect to the stator rim segment (38), but is  
4 separated by a separation line (78) from an overlap area (80) of the stator rim segment (38)  
5 which precedes it in the circumferential direction.

1 22. Stator according to Claim 21, characterized in that the axial distance  
2 between the flow inlet edge (82) of the vane (17) assigned to a particular stator rim segment  
3 (38) and the flow outlet edge (84) of the vane (17)) preceding it in the circumferential direction  
4 is determined by the overlap area (80).

1 23. Stator according to one of Claims 1-22, characterized in that, during the  
2 deformation operations to which the blank (32) is subjected, the stator hub segments (36) are  
3 bent relative to the vanes (17) in a first pivot direction (B1) around the first bending line (74)  
4 into the new plane of extension (42), while the stator rim segments (38) are bent in an  
5 opposite, second pivoting direction (B2) around the second bending line (76) into their new  
6 plane of extension (46).

1 24. Stator according to Claim 7 or Claim 8, characterized in that the minimum  
2 of one segmented stator hub (58) is attached to the base body hub (60) by brazing or by  
3 adhesive bonding.